[redacted] [redacted] [redacted]

Tab A
Section 1

OXCART

DEVELOPMENT SUMMARY AND PROGRESS

(1 October 1966 - 31 December 1966)

I. AIRFRAME

A. Aircraft 127 made its first flight on 11 October after service bulletin modifications were completed. On 18 October, aircraft 127 flew a seven hour, forty minute mission which represented the longest A-12 flight to date. The old record was held by aircraft 129 which had flown a seven hour, thirty-five minute flight on 12 October 1966.

B. A meeting was held at Project Headquarters of the Headquarters' members of the OXCART Aircraft Configuration and Flight Test Control Board. The purpose of this meeting was to review completed staff actions resulting from the CCB meeting held on 22 September 1966 [redacted] 25X1A6A

C. On 21 December 1966, aircraft 121 flew a six hour and nine minute mission of which three hours and thirty minutes were spent at or above Mach 3.2. The flight consisted of two in-flight refuelings and preliminary reduction of data indicates one leg of the mission covered a distance of 3067 nautical miles.

II. PROPULSION

A. Fuel conforming to the revised (523-E) fuel specification is currently being received [redacted]. The new fuel should eliminate the contamination problem, which in the past has affected certain engine fuel system components. By flushing aircraft fuel systems and through a program of monitoring newly installed fuel system components recently received from overhaul verification, it was established that the fuel contaminant accumulation problem had been eliminated. 25X1A6A

B. Detachment aircraft were grounded as a precautionary measure for approximately ten days in November due to an undefined contaminant being discovered in the fuel tanks of several aircraft. The contaminant was later attributed to be a chemical derivative of improperly cured fuel tank sealant material. Laboratory tests determined that the contaminant was insoluble in the fuel over the temperature range that the fuel encounters during operations. As a result, the foreign particles, when they occurred in the tank, would be screened out of the system by the aircraft and engine fuel filtering system.

[redacted]

[redacted]

C. On 25 October, following the sixth failure of a Hamilton Standard, Engine Main Fuel Control T_{T2} Sensor (compressor inlet temperature), all articles were grounded until the problem could be resolved. As an interim solution the sensor of the design, which had been failing, was replaced by an earlier design which is currently used as the Afterburner Fuel Control T_{T2} Sensor. The older sensor has a more rugged design than the later model but a slower response rate. It is expected that the Afterburner Fuel Control T_{T2} Sensor will provide adequate main fuel control with the possible exception that the pilot will have to perform more hand trimming of the EGT (exhaust gas temperature).

D. Procurement was initiated during October for two new T_{T2} Sensor designs for the main fuel control from Hamilton Standard. Sensors reflecting these changes were being received at the end of November. In the interim, fourteen spare afterburner control type sensors were available and installed on engines. In addition, there were a total of nine YJ engines on hand equipped with Bendix Main fuel controls which utilize
25X1A6A a different style T_{T2} sensor. Seven of these engines were brought up [redacted] to BLACKSHIELD configuration on an expedited basis

E. As a result of the recent failures, a flight test program was conducted during November, using aircraft 127, to evaluate the various designs of Main Engine Fuel Control TT2 (compressor inlet temperature) sensors. Test sensors were strain gaged in an attempt to determine if any particular condition of flight produced stresses which might affect their structural integrity. Flight data included EGT, engine RPM and T_{T2} in order to determine the response rate and accuracy of EGT and RPM scheduling of main fuel controls in combination with the various T_{T2} sensors. At this writing the test data has not been completely analyzed. Evaluated results still appear to be in agreement with an earlier analysis, i.e., the center strut, three loop sensor design appears to represent the most favorable combination of temperature response rate
25X1A6A and structural integrity. Ten units of this design had been received [redacted] at the end of November with further deliveries scheduled at a rate of three to four units per week.

F. Several range extension test flights were conducted during November using flight test aircraft 121. The major propulsion system modification incorporated on these flights involved an improved seal system for the "basket" assembly, which constitutes the forward bypass bleed door system.

Carefully fitted U-shaped stainless steel seals were utilized in lieu of the standard Viton seals in this area. Preliminary results of these tests indicate that inlet leakage air has been reduced from 8% to 3% of the air entering the inlet. The early results indicated an inlet recovery of approximately 76.5% which was reduced somewhat due to the inlet forward bypass doors being open an average of .3 inches. A planned revision of the forward door position/pressure schedule, to insure that the forward doors are closed at Cruise Mach numbers, with the improved seals could potentially raise the inlet recovery to approximate the design matched inlet recovery value of 80%.

G. Some complaints have been registered by pilots as a result of the two engines having different afterburner fuel flow schedules.

1. The effect is a right to left engine thrust mismatch over the acceleration speed range when the engine bypass bleed doors open to Cruise Mach number. This condition results when one engine incorporates a so called "Y" or reset schedule of W_F/P_B versus T_{T2} (ratio of afterburner fuel flow to main burner pressure versus compressor inlet temperature) in the afterburner fuel control and the other engine incorporates a "J" or non-reset schedule. This discrepancy results from a difference in design concept of required afterburner fuel flow schedules at the time the Y and J afterburner fuel controls were designed. The maximum resulting left to right hand fuel flow and thrust differences during acceleration appear to be 5800 pounds per hour and 750 pounds respectively. Y and J afterburner fuel flow schedules are identical at cruise.

2. A cam change is required to change an afterburner control from a Y to a J schedule and at least seventeen afterburner fuel controls have been so modified to date. A conversion rate of 4 to 5 controls per month will keep the Hamilton Standard facility at full capacity. Henceforth, insofar as is possible, engines will be installed 25X1A6A at [redacted] with matched left and right hand afterburner fuel flow schedules.

H. Engine Management Report

1. During the period 1 October thru 31 December 1966:

Average No. of engines installed	15
Average No. of engines in field maintenance	23
Average No. of engines in overhaul (East Hartford)	7
Average No. of ready spares	8
Engines sent to overhaul (East Hartford)	8
Engines received from overhaul	6

As of 31 December 1966:

Engines installed	16
Engines in field maintenance	19
Engines in overhaul (East Hartford)	8
Spares	10

Projections from 1 January thru 31 March 1966:

Engines to overhaul or repair	12
Engines from overhaul, modification, or repair	12

2. Turn around time for engines returned from overhaul at East Hartford for October, November and December averaged 70 days.

3. One (1) engine was sent to overhaul during this period for foreign object damage.

III. PAYLOAD

[redacted]

25X1

C. Thirty-three (33) photo configuration sorties were flown during this quarter.

Type	No. of Flights	Remarks
I	Eighteen (18)	Successful
II	Six (6)	Successful
IV	Six (6)	Successful
	Three (3)	*Unsatisfactory

*One shuffle roller malfunction (20 min oper)
One V/H sensor malfunction (9 min oper)
One 400 cycle relay malfunction (10 min oper)

IV. AIRCRAFT FLIGHT TEST SUMMARY (OCTOBER, NOVEMBER, DECEMBER)

Acft No.	Flights	Time	Total Flights	Total Time
121	15	30:31	261	289:34
122	-	-	157	169:39
123	-	-	78	136:10
124	40	71:25	540	953:35
125	14	30:50	203	334:50
126	-	-	104	169:16
127	12	30:30	185	320:00
128	9	21:45	165	306:55
129	12	32:05	188	245:54
130	12	28:55	152	268:28
131	11	23:10	101	165:55
132	10	20:55	131	219:57
133	-	-	9	8:17
Totals	135	290:06	2274	3588:30

OXCART

OPERATIONAL SUMMARY AND PROGRESS

(1 October 1966 - 31 December 1966)

I. EMERGENCY CAPABILITY (SKYLARK):

A. A SKYLARK type MPX was conducted 25-26 October 1966. This was an In-House MPX between Flight Planners at Headquarters 25X1A6A [redacted] Message exchange was limited to a Mission Alert Message, Mission Plan Messages, and a Camera Programming Message. Canned SKYLARK departure and withdrawal routes were used with the penetration route planned to cover the maximum land mass. This route will be retained [redacted] as a possible canned mission until such time as the SKYLARK A/R areas are revised. 25X1A6A

II. CONTINGENCY PLANNING - FAR EAST [redacted] 25X1

A. No change.

III. SUPER MAIDEN/ [redacted] DEPLOYMENT PLANS: 25X1

A. A revised Operations Plan 51-66 [redacted] was published and distributed on 20 October 1966. 25X1A2G

B. Super Maiden - No change.

IV. FORWARD BASE EXERCISE:

25X1 A. [redacted]

1. A quarterly Forward Base Exercise (FBX-03) was conducted at this base during the period 11 through 14 October 1966. The purpose of FBX-03 was to exercise forward base facilities and perform flushing/fueling of a KC-135.

2. Critique comments from all participants subsequent to the exercise termination were favorable.

B. Kadena AB, Okinawa

1. A Forward Base Exercise was conducted from this base during the week of 14 November 1966. The purpose of this FBX was to exercise all procedures required to 25X1A2G fly a [redacted] operational mission.

Notification procedures through JCS/JRC to CINCPAC, radar suppression and air space blocking in all areas of operation and weather scout procedures were exercised and found to be adequate. In addition, Detachment, host base and supporting commands were exercised.

2. During December, Project Headquarters conducted an in-house critique of the above FBX. JCS(JRC) critique of this exercise was conducted on 15 December covering items received from the supporting commands. The FBX was highly successful and no problem areas were encountered during the exercise which would preclude operational missions being flown from this base.

V. A-12 DIVERSION (HEAVY LOSS):

A. On 19 October, aircraft 125 experienced a rise in EGT followed by numerous compressor stalls requiring the pilot to shut down number two engine. The aircraft diverted to Kirtland AFB, New Mexico, and landed without incident at 1834Z.

25X1A6A B. Pre-packed recovery kits and support personnel were flown to Kirtland aboard [redacted] C-130 and F-27 aircraft. An [redacted] Security representative and a Maintenance Supervisor arrived at Kirtland 19 October/2100Z, to monitor the secure handling and guarding of the A-12 and pilot. A Beale AFB, KC-135 tanker arrived at Kirtland with PF-1A fuel on 20 October/ 2200Z. The A-12 "buddied" [redacted] with the KC-135 on 22 October with an F-101 "flying chase". The flight [redacted] was completed without incident. 25X1A6A 25X1A6A

VI. PROJECT PILOT INVENTORY:

A. Six Project pilots are currently operationally ready.

B. Two newly assigned Project pilots are presently in training for operationally ready status; estimated operationally ready date, 1 July 1967.

VII. A-12 AIRCRAFT:

25X1A6A

A. Ten aircraft are assigned [redacted] of which eight are assigned to the Detachment and two to the Flight Test Center. Aircraft 124 is a J-75 equipped, dual seat trainer, all other aircraft are J-58 equipped.

VIII. PLANNING CONFERENCE: USE OF A-12 SPARE AIRCRAFT

25X1A6A

A. A planning conference was held on 13 December [redacted] with representatives from Project Headquarters, [redacted] 25X1 SAC/Beale AFB in attendance. During this conference, procedures were agreed upon and developed outlining the use of a spare A-12 aircraft for BLACKSHIELD operational missions. Essentially, two A-12's will be generated for two separate take-off times; a primary at "H" hour, and a back-up or spare at H + 1 hour. Each take-off time will have a maximum launch delay of fifteen minutes.

IX. FLIGHT TEST: SUPER CONTINENTAL

A. Lockheed flew the flight test aircraft 121 on the SUPER CONTINENTAL route, on 21 December. The aircraft was equipped with K-34 engines. Total distance from take-off to landing was 8713 N.M. with a maximum unrefueled distance of 3048 N.M. A new high of three hours and thirty minutes over Mach 3.2 was established during this flight.

X. PERFORMANCE STATISTICS

A. Maximum speed (Article 125, Flight No. 105, 8 May 1965). . . . . 3.29 Mach

B. Maximum take-off gross weight (Article 129, Flight No. 105, 8 May 1965) . . . . . 123,750 lbs.

C. Maximum altitude (Article 129, Flight No. 138, 14 August 1965). . . . . 90,000 ft.

D. Maximum endurance subsonic/supersonic (Article 127, Flight No. 175, 18 October 1966). . . 7:40 (4 A/R)

E. Maximum endurance - subsonic only (Article 129, Flight No. 139, 19 August 1965). . . . . 5:50 (1 A/R)

F. Maximum sustained time at/above 3.0 (Article 129, Flight No. 130, 22 July 1965) 1:17

G. Maximum sustained time at/above 3.2 (Article 121, Flight No. 261, 21 December 1966) . . 3:30

H. Maximum cumulative time at/above 3.0 (Article 130, Flight No. 54, 12 November 1965) . . 3:50

I. Assigned Detachment pilots. 8

J. Average A-12 time operationally ready Detachment pilots . . . . . 353 hours

K. Detachment pilots Mach 3.2 qualified. 6

IDEALIST

DEVELOPMENT SUMMARY AND PROGRESS

(1 October 1966 - 31 December 1966)

I. U-2R AIRCRAFT:

A. The initial U-2R Development Progress Report from Lockheed stated that work is proceeding according to schedule.

B. A U-2R Cockpit Mock-up Review meeting was held at Lockheed Aircraft, Burbank, California, on 29 and 30 November. In addition to a detailed cockpit critique by pilots in full pressure suits; the model specifications, spares support and the baseline configuration with respect to EWS, sensors and Com-Nav equipment were reviewed. At this time, no specific problem areas could be identified and the program is proceeding on schedule.

C. A U-2R baseline configuration paper is being prepared for submission to D/NRO.

Tab B
Section 2

IDEALIST

OPERATIONAL SUMMARY AND PROGRESS

(1 October 1966 - 31 December 1966)

I. GENERAL SUMMARY

25X1C8A

A. There were no Agency U-2 overflights during the month of October. Operations at the [redacted] Detachment were curtailed on 17 October due to President Johnson's Far East trip and the Manila Conference.

25X1C8A

B. One Agency U-2 overflight (Mission C-276C) was made on 26 November 1966. Mission C-196C was alerted for 3 November but was cancelled for lack of [redacted] Mission C-206C was alerted for 23 November but was cancelled due to [redacted] 25X1C8A desiring postponement to a later date and ultimately due to weather.

25X1C8A

C. There were no Agency U-2 overflight missions during December 1966. Mission C-226C was alerted for 2 December but was disapproved [redacted] due to lack of an urgent requirement. Mission C-236C was alerted for 21 December and cancelled on 25X1C8A 22 December for lack of [redacted] Mission C-246C was alerted for 29 December and was cancelled for dual reasons, lack of [redacted] and ultimately weather. Deployment to 25X1C8A [redacted] for training was attempted on 4 December but was 25X1C8A disapproved [redacted] 25X1C8A

25X1A2G

D. [redacted] Training 25X1C8A

25X1A2G

1. [redacted] completed training at Edwards AFB on 6 October and returned [redacted] for local upgrading.

25X1A2G

2. [redacted] reverted to CAT III status on 25 November. No new ETOP has been predicted for him since present plans call for additional ground and flight training in the U-2.

25X1A2G

3. [redacted] have completed T-33 and U-3 training. U-2 flight training is 33% completed.

25X1A2G

E. After successfully completing the flight test program at Edwards, the "H" camera was deployed [redacted] in December. Since its arrival there, five training/test missions have been flown, and it is expected the camera will be operationally ready on 1 January 1967.

25X1A2G

F. Five flight tests for Project [redacted] were flown during this quarter. Fuel data obtained on the first December flight compared very favorably with the October results. Ballistic data collected on the third and fifth sorties will be used to compute valid drop information.

G. Article 373, a "C" model equipped with the 13B engine, is scheduled to deploy from Edwards AFB, California, to [redacted] on 10 January 1967. 25X1A6A

II. PRODUCT IMPROVEMENT 25X1A2G

A. Project [redacted] flight tests were successfully performed during October with targets covered as scheduled.

B. The APN-153/ASN-66 Doppler Navigation System tests were conducted in conjunction with the [redacted] flight tests. Four systems have been contracted for with the first system delivery scheduled for January 1967. 25X1A2G

C. The Air Data Computer/Tape Altimeter tests were suspended due to the necessity of having to remove certain portions of the equipment to perform higher priority tests. Completion of the tests are scheduled for January 1967 along with the System 21 installation with Rega Jane recorder.

D. Four J-75 (P-2, P-13, P-17, P-19) engines have been converted to J-75-13B engines. Three have been installed, tested and are operating satisfactorily. After conversion the original type P-2, P-13, P-17 and P-19 lose their individual identity and become P-13B engines. This eliminates the problem of shipping type P-17 engines [redacted] 25X1A2G

E. Arrangements have been made to procure one specific brand of engine oil for all customers. This will eliminate flushing of engines which is mandatory when different brands of oil are used.

F. The aircraft and engine historical records reporting system is in the process of being standardized. This should tighten administrative and maintenance controls on QEC kits and time change items.

Tab C

ISINGLASS

(1 October 1966 - 31 December 1966)

I. No change.